

**Amendments to and Listing of Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Claim 1 (previously presented)** A system for recharging and communicating with a body implanted stimulator having a rechargeable battery comprising:

- a base station;
- an antenna/charging coil that is used to inductively charge the rechargeable battery within the implanted stimulator and to transcutaneously communicate with the stimulator, wherein the antenna/charging coil is coupled to the base station;
- means for driving the antenna/charging coil with a charging signal when used as a charging coil; and
- means for driving the antenna/charging coil with a communication signal when used as a communication coil.

**Claim 2 (original)** The system of claim 1, further comprising:

- circuitry for accomplishing forward and backward frequency shift keying (FSK) telemetry with the implanted stimulator,
- wherein the antenna/charging coil is configured and dimensioned to enable FSK telemetry.

**Claim 3 (original)** The system of claim 2, further comprising:

- circuitry for accomplishing forward on-off keying (OOK) telemetry with the implanted stimulator using the antenna/charging coil.

**Claim 4 (original)** The system of claim 1, further comprising:

- a current measuring circuitry for determining power consumption in the antenna/charging coil.

**Claim 5 (previously presented)** The system of claim 1, further comprising:

- a printed circuit board (PCB) coupled to the antenna/charging coil; and
- a sensing circuitry for sensing temperature included on the PCB.

**Claim 6 (original)** The system of claim 5, further comprising:  
an automatic power shut-off circuitry for automatically shutting off power to the antenna/charging coil when the sensed temperature through the antenna/charging coil exceeds a predetermined level.

**Claim 7 (previously presented)** The system of claim 1, further comprising:  
a booster coil used for zero-volt battery recovery (ZVR), wherein the booster coil is coupled to the antenna/charging coil.

**Claim 8 (original)** The system of claim 7, wherein the booster coil has about 6 turns of multi-stranded Litz wire in 2 layers of 3 turns each, wrapped around a coil spool.

**Claim 9 (original)** The system of claim 7, further comprising:  
a power sensing circuitry for determining power consumption in the booster coil;  
and  
an automatic power shut-off circuitry for automatically shutting off power to the booster coil when the power consumption through the booster coil exceeds a predetermined power level.

**Claim 10 (previously presented)** The system of claim 7, further comprising:  
a chair pad;  
a printed circuit board (PCB) contained in the chair pad;  
a sensing circuitry for sensing temperature included on the PCB; and  
an automatic power shut-off circuitry for automatically shutting off power to the booster coil when the sensed temperature through the booster coil exceeds a predetermined power level.

**Claim 11 (original)** The system of claim 1, wherein the antenna/charging coil has about 24 turns of multi-stranded Litz wire wrapped around a 200 mm inside diameter coil spool.

**Claim 12 (previously presented)** The system of claim 10 wherein the chair pad is further comprised of:

- a compliant chair pad housing made of polyurethane foam;
- a chair pad printed circuit board (PCB); and
- a coil assembly housing which contains a booster coil, the antenna/charging coil and the chair pad PCB,

wherein the polyurethane foam housing encapsulates the coil assembly housing.

**Claim 13 (original)** The system of claim 12, wherein the chair pad is further comprised of:

- padding that surrounds the polyurethane foam housing; and
- an exterior slipcover that surrounds the padding.

**Claim 14 (previously presented)** The system of claim 1, further comprising:

- a booster coil that is placed in a coil assembly with the antenna/charger coil, wherein the booster coil and antenna coil are wound over a spool coil in a configuration to present at least one substantially flat side; and
- a coil shield which is grounded and which shield is placed as part of the coil assembly to substantially cover the antenna/charger coil and the booster coil,

wherein the coil assembly is fully encapsulated in an external housing.

**Claim 15 (original)** The system of claim 14, wherein the housing is polyurethane foam and has approximate dimensions that are about or smaller than 50 cm by 50 cm by 15 cm thick.

**Claim 16 (previously presented)** The system of claim 10, further comprising:

- a chair pad cable that connects the chair pad to the base station; and
- detection circuitry for automatically detecting disconnection of the chair pad cable from the chair pad.

**Claim 17 (original)** The system of claim 9, wherein the base station includes:

- a speaker for generating an audible sound to signal a significant system event.

**Claim 18 (original)** The system of claim 1, further comprising:  
a booster coil for use in zero volt battery recovery (ZVR); and  
first and second impedance matching networks,  
wherein a first amplifier power supply to the antenna/charging coil is impedance matched with the first impedance matching network; and  
wherein a second amplifier power supply to the booster coil is impedance matched with the second impedance matching network.

**Claim 19 (original)** The system of claim 18, wherein the first impedance matching network is a 50 Ohm matching network and the second impedance matching network is a 50 Ohm matching network.

**Claim 20 (original)** The system of claim 1, wherein the implantable stimulator is a microstimulator having a maximum length-wise dimension of about 3.5 centimeters and a maximum width of about 5 millimeters.

**Claim 21 (original)** The system of claim 1, further comprising:  
a sensor for detecting power levels in the antenna/charging coil; and  
a variable output power supply that automatically adjusts downwards when the power levels detected by the sensor detects power levels that exceed a predetermined levels,  
wherein the variable output power supply is contained within the base station.

**Claim 22 (original)** The system of claim 21, wherein the variable output power supply ranges from between about +7 to + 20 VDC.

**Claim 23 (previously presented)** The system of claim 10, wherein all voltages and currents inside the chair pad are below about 4.5 Amperes and below about 25 Volts.

**Claims 24-43 (canceled)**

**Claim 44 (previously presented)** The system of claim 4, further comprising:

an automatic power shut-off circuitry for automatically shutting off power to the antenna/charging coil when the power consumption through the antenna/charging coil exceeds a predetermined level.